

# New England Hillclimb Series Classifications • 2017

Additions to the 2016 rules are indicated in ***bold italic***.

The following are guidelines for the New England Hillclimb Series. They are meant to be a fair and equal grouping of cars in a competitive nature. All cars are classed as though they were prepared to the ultimate state.

FORMULA LIBRE – Any car legal for any NEHA class may bump to Formula Libre at the entrant's request. Cars in Formula Libre must be legal for some other NEHA class with the exception that cars not legal for Prepared because of engine displacement or tech rules 2.BB.1 and 5.FF.1 are legal in Formula Libre.

## Prepared

PREPARED 1 – Cars with a displacement of 4501cc to 8000cc.

PREPARED 2 – Cars with a displacement of 2201cc to 4500cc.

PREPARED 3 – Cars with a displacement of 1601cc to 2200cc.

PREPARED 4 – Cars with a displacement of 1600cc and less.

## Displacement Factors

The following factors will be applied to engine displacements for determination of Prepared classes.

- A. Supercharging, turbocharging, or nitrous oxide induction: Multiply actual displacement by 2.
- B. Rotary engines: Multiply rated displacement by 1.62.

Factored displacement from A and B will apply as actual displacement for use of the following factors:

- C. Cars with a throttle plate area of less than 0.65 mm<sup>2</sup>/cc : Deduct 12% of actual displacement.
- D. Cars competing on tires meeting the requirements of Sec. 2.C.4 (DOT tires): Deduct 12% of actual displacement.
- E. Four Wheel Drive: Multiply actual displacement by 1.25
- F. Variable valve timing: Multiply actual displacement by 1.25.

Classes recognized as production classes include SCCA IT and AS; production classes in SCCA, EMRA, and SVRA; and most Street Stock

classes. Criteria for recognition of existing classes, or for use of this factor on cars not originating in these classes, are retention of all-original body, frame, floors, and firewalls; use of all original control arms and original suspension geometry; original configuration of engine, in stock position.

## Unprepared

All cars shall be as produced, available in the North America, and at least 500 made by the manufacturer. Must be capable of passing a Vermont State Vehicle Inspection. No stock equipment or parts may be removed unless they were available as an option on that particular vehicle. The only exception is removal of the A/C system. Some interior parts may be minimally altered (but not removed) to allow installation of safety equipment. The engine is to be the original type and size for that year car. Other than the air filter and its housings the induction system may not be modified to allow more air into the engine, such as oversize throttle bodies, carbs, or intake manifolds. A piggyback computer that can modify the mass air flow or MAP sensor is illegal. No modifications to the exhaust manifold. The exhaust system may be replaced with a "cat-back" system (where applicable) that runs in the stock location and exits in the stock location.

Bolt-on bracing and minor suspension reinforcements that require no cutting or fabrication for installation are allowed. Springs must be on original seats.

Rim size may be changed. Tire size is free. (Fender lip may be flattened to help prevent tire chafing.) Tires must be DOT approved. OEM flexible brake lines may be replaced with aftermarket or motorsport braided stainless steel lines.

## Street Prepared

This category is based on stock production vehicles that are easily recognized as such, and must have operational lights, horn, glass, wipers, mirrors, door handles, bumpers, bumper reinforcement bars (in good condition OEM or equivalent), heater and dashboard.

The following items may be removed: emissions equipment, sound deadening, sound system, head liner, floor covering, trunk area covering, rear seating (provided that proper separation remains or is installed between driver and fuel area). Removal in excess of the above invokes the excessive lightening penalty.

Plastic side and rear windows will invoke the excessive lightening penalty unless 30 lbs of compensating weight is added to the car.

Doors may not have any structure removed causing them to be excessively lightened – i.e.; intrusion bar, outer framework and basic structure of the door must remain intact.

The floor and trunk area must remain intact and in stock location. Any modifications to the floor or trunk area must be sealed as good as the factory

original. All exterior body panels must appear as stock and remain in place (fender flares are free).

Relocation of accessories, batteries, fuel system, electrical components is allowed, provided that the exterior of vehicle remains as produced.

Interchange of production options within the model is free (while adhering to the adjustments from the norm section). Engine/ driveline modifications are allowed.

Rim size may be changed. Tire size is free but the tread may not be seen from above. Tires must be DOT approved. Wheel openings shall retain their original contour when viewed from the side.

The above paragraphs do not void any applicable safety requirements as listed in the Technical and Safety Requirements.

### Class Determination

Classes are determined within a category by the ratio of adjusted engine displacement (in cubic centimeters) to vehicle weight (in pounds).

Curb weights are those published in the N.A.D.A. used car dealer guide, if available, or on the vehicle manufacturer's tag if equipped and not tampered with. If the tag weight is used, it will be given in gross vehicle weight and must be adjusted. Subtract 175 lb per occupant, from the GVW to get curb weight.

Actual displacement is adjusted by factors from the "norm" and then divided by the curb weight. (Norm = 2 valves and 1 injector per cylinder normally aspirated, in-line configuration.) This number will be used to class the car. Note: Side-intake-port Wankel rotary engine displacement is multiplied by 1.62 prior to applying factors.

Some classes in Unprepared and Street Prepared are limited to two wheel drive (2WD) vehicles.

The tech inspectors are empowered to inspect your vehicle and personal equipment for general safety for participation at our events. Tech inspectors are NOT the classification committee.

#### UNPREPARED CLASSES

Unprepared 1		1.550 and above cc/lb
Unprepared 2	2WD	1.550 and above cc/lb
Unprepared 3		Less than 1.550 cc/lb
Unprepared 4	2WD	Less than 1.550 cc/lb
Unprepared 5		Less than 1.000 cc/lb
Unprepared 6		Less than 0.840 cc/lb

#### STREET PREPARED CLASSES

Street Prepared 1		1.500 and above cc/lb
Street Prepared 2	2WD	1.500 and above cc/lb
Street Prepared 3		Less than 1.500 cc/lb
Street Prepared 4	2WD	Less than 1.500 cc/lb
Street Prepared 5		Less than 1.060 cc/lb

#### Street Prepared 6

Less than .900 cc/lb

To determine your car's class, multiply your car's displacement by each applicable adjustment on the next page. Take the sum and divide this by the car's weight to come up with your class factor. Apply this number to the chart above. Then come run and have fun!

In addition:

- There will be no penalty for a roll cage regardless of how it is tied in to the body structure, or for racing seats.
- Updating or backdating within the model will not be penalized (factors will be assessed after the changes).
- Emission requirements shall not be considered in the enforcement of these rules.
- No kit cars and no engine swaps will be allowed in Unprepared. In Street Prepared and Prepared, kit cars and engine swaps will be classed where deemed most competitive.

#### Adjustments to the displacement for variations from the norm will be:

Variable valve timing	25%
Four-wheel drive	25%
Wheel size (diameter and width)	1% per 0.5 inch
Tire treadwear rating (50–150 U Class) (< 100 SP Class)	8%
Non-stock antiroll bars (SP only)	5%
Non-stock springs (SP only)	5%
Modified suspension (SP only) (other than shocks, alignment, and bolt-on reinforcement)	5%
6-point roll cage (U Class)	– 5%
6-point roll cage (SP Class)	– 20%
Intact interior (SP only with full cage)	– 5%
Excessive lightening (SP only)	10%
More than 2 valves per cylinder *	10% each
More than 1 camshaft per bank of cylinders	5%
V type engine configuration	10%
1 venturi or injector per 4 or more cylinders	– 20%
1 venturi or injector per 2 cylinders	– 10%
Non-stock exhaust manifold (SP only)	10%
Non-stock induction (SP only)	10%
Turbocharger	30%
Supercharger	25%
Intercooler	25%
Excessive sound (over 96 dB) at 50 feet	15%
Nitrous oxide (mandatory fire system) (SP only)	+ 1 Class
Diesel	– 25%

\* Stratified charge valves not included.

## Electric Vehicles

Electric vehicles must use only electric power during racing. Motor(s) must be powered only by a charge storage device (batteries, capacitors, other charge accumulators), or by fuel cell. A hybrid electric vehicle (e.g., Toyota Prius) may be raced in electric-only mode.

Unprepared Electric (UEV) class is for unmodified electric vehicles built by a recognized manufacturer to U.S. DOT standards.

Prepared Electric (PEV) class is for modified, converted, or custom electric vehicles, and must comply with the technical and safety rules for PEV.

## Rally Sprint

Properly Rally Logbooked cars only-includes NASA Rally, RA, FIA, CARS. Rally Sprint cars do not need to be registered/street legal as there are no transits.

Driver and co-driver must have all safety gear required by Logbook's sanctioning body. Driver and co-driver must be as listed on the entry. No Rally license required.

## Rally Sprint Classes

R1 Turbo/supercharged/high displacement cars (RA's Open, G5; NASA's 2wd/4wd Heavy) AWD turbo cars in R1 must use a 34mm turbo restrictor.

R2 Non-turbo cars (RA's Open Lite, G2; NASA's 2WD/4WD Lite)

Rally Sprint times are cumulative over both days, each timed run being considered a special stage Bogey times: If a run is missed (DNF/DNS), time will be 120% of the slowest car in that class for that run (or the previous run if all cars in class miss the same run). Maximum 2 "bogey" times per weekend

Driver and Co-driver points per class are calculated per NEHA point rules. Must meet NEHA minimum event limit to be eligible for year end points.

Tires: Must be DOT tires or Tarmac Rally Tires. Slicks are disallowed: "slicks" are defined as any tire that does not have a minimum of 1.6mm (2/32") tread depth over at least a 17% void area.

Any rule not directly addressed by the rally sprint class rules defaults to NEHA SP class rules. (Example: all cars with a kill switch must have an air horn installed)